1929 to 1958 - From Aeronautical Engineering to Mechanics

Part II

In the late 1930s, the University administration began showing concern over the direction of the department. The department's and the school's competitiveness with other universities depended on a state-of-the-art, progressive curriculum. Consequently, Dean Samuel Lind of the new Institute of Technology (IT) felt obligated to evaluate his departments critically. He favored upgrading the curriculum, but the demands of WWII dictated that universities contribute to the war effort by training the largest number of scientists and engineers possible, as well as providing applied research. Lind thus postponed restructuring the curriculum until the war was over.

As one way of satisfying the country's demand for engineers during the war years, the University of Minnesota was one of seven universities participating in a unique educational experiment. One hundred and two young women from all parts of the country were selected to study aeronautical engineering at the University of Minnesota. These young women were employees of the Curtiss-Wright Corporation and were pledged to work in engineering departments of that company after graduation. They were called the Curtiss-Wright Cadettes. The Cadettes were intended to replenish Curtiss-Wright's dwindling supply of engineers. While in school, these women received room, board, tuition, and pocket money ($10/week). They were expected to work 40 hours/week with 30 hours of classroom instruction and 10 hours of supervised study for a period of 10 months.

The course of study for the Cadettes included drawing, structures, mechanics, aerodynamics, machine shop, materials testing, and aluminum fabrication. Those who doubted the engineering capabilities of women were soon proved wrong and before long the faculty found themselves teaching material far more advanced than originally envisioned. In the 10 months the students earned approximately two and one half years of college credit in engineering subjects.

Nearly 100 Cadettes completed the course and went on to Columbus, Ohio in December of 1943. The majority worked at Columbus until the end of the war. Some advanced to full engineering positions and some to supervisory jobs.

In 1946 the university began negotiations with the U. S. Government to acquire the idle Gopher Ordnance Works and its accompanying 8,000 acres of land south of the Twin Cities. The university finally purchased the installation in March 1948 for $1. This became the site of the Rosemount Aeronautical Laboratory (RAL), which would serve as the Aeronautical Engineering department's primary research facility for almost 15 years. Faculty members designed and installed a number of wind tunnels at Rosemount, including a hypersonic wind tunnel capable of producing speeds between Mach 7 and 11 and air temperatures of 3,000 degrees Fahrenheit. The RAL would be the site of significant research for both industry and the military. Graduates of the Department who worked at RAL developed a total temperature sensor for the Navy and then formed the Rosemount Engineering Company to produce it commercially. Rosemount Engineering became one of the world's largest suppliers of air data and other flow sensors. The company later divided into Rosemount Inc. and the Sensor Division of B.F. Goodrich Aerospace.

Dean Lind retired in July 1947. After a year-long search, the Board of Regents approved Athelstan Spilhaus, a professor of meteorology and the director of research at New York University, as the new Dean of the Institute of Technology. Spilhaus officially took office in January 1949 and brought with him a vision of developing the scientific foundation of Minnesota's engineering programs. He advocated a focus on fundamentals and aspired to leadership in theoretical research. He believed that a science-based curriculum and research were the principal components of a strong engineering program. In 1950, Spilhaus reported that within the Institute of Technology the "development of graduate instruction and research is emphasized."

Akerman exerted little effort in support of Spilhaus's vision and eventually resisted it. The turbulent relationship between Akerman and Spilhaus hindered the development of engineering science in the Aeronautical Engineering department. In the spring of 1951, Dean Spilhaus's made his first major attempt to personally redesign the Aeronautical Engineering department. Enrollment had reached its lowest point at this time because of the mistaken perception of a surplus of engineers and the need for soldiers for the Korean War. The budget mirrored the drop in enrollment. Spilhaus pushed departments to reduce their costs as much as possible without risking their students' educations. As a means of eliminating the duplication of courses and thereby reducing costs, Spilhaus proposed making Aeronautical Engineering a division of Mechanical Engineering as it had been up until 1929. In this instance, Spilhaus was out of step with the rest of the country. Many aeronautical engineering programs started as options within mechanical engineering departments, as happened at Minnesota. However, by 1951, the trend was for independent departments of aeronautical engineering-Iowa State and Purdue being two such examples. Mechanical engineering coursework no longer met the technological and theoretical requirements of the aeronautical industry.

Despite decreases in enrollment and Spilhaus's perspective on the state of the department's curriculum and leadership, the Aeronautical Engineering department produced a number of notable graduates including Donald "Deke" Slayton, one of the original Mercury 7 Astronauts. However the curriculum was still extremely practice-oriented. Spilhaus refused to give up his quest to see Minnesota's engineering curriculum develop its strength in basic science, engineering science, and its "underlying principles," and an overhaul of the aeronautical course requirements was a priority for him. Spilhaus's second attempt to remedy the sluggishness he saw in the Aeronautical Engineering department came in May of 1957. He proposed a radical modification to the department-a merger with the Department of Mechanics and Materials and the subsequent removal of John Akerman as head of the combined department. Mechanics and Materials granted only graduate degrees, but taught undergraduate courses in mechanics. Aeronautical engineering was a professional department that granted mostly undergraduate degrees. Spilhaus intended the merger to combine the strengths of both departments and eliminate the weaknesses he saw in the aeronautical engineering program. Dr. Benjamin Lazan, Associate Dean of IT and head of Mechanics and Materials, took over as head of the combined departments in 1958.

In bringing John Akerman to the University in 1928, Dean Leland had hoped to create a program in aeronautical engineering with close ties to industry. The University of Minnesota Aeronautical Engineering department, however, was never able to establish relations with large aviation companies like those of the Guggenheim Schools. Except for some kit aircraft companies, all aircraft production companies in the state of

Minnesota folded by 1931 because of financial failure or their inability to build working aircraft. Dean Leland's hope that Minnesota would become a major center for airplane manufacturing was not to become a reality.

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